

Amendments to the Claims

1 (currently amended). A material in the form of particles ~~having an average diameter of up to about 350 nanometers~~, the particles comprising a silica base particle having an average diameter of up to about 300 nanometers and one or more ZrO₂ or TiO₂ coating layers deposited by an atomic layer deposition process on the surface of said base particle, ~~wherein said base particle or at least one coating layer is silica (SiO₂), and said base particle or at least one coating layer is a metal oxide having a refractive index greater than 1.60, wherein the particles have a predetermined refractive index greater than that of silica alone, and an average diameter of from 10 to 150 nanometers.~~

2-3 (canceled).

4 (currently amended). The material of ~~claim 3~~ claim 1 having a refractive index of 1.48 to 1.60.

5 (original). The material of claim 4, wherein the particles have at least one ZrO₂ layer deposited by an atomic layer deposition process upon the silica base particle.

6 (original). The material of claim 5, wherein at least one SiO₂ layer deposited by an atomic layer deposition process is present upon the surface of a ZrO₂ layer.

7 (original). The material of claim 4, wherein the particles have at least one TiO₂ layer deposited by an atomic layer deposition process upon the silica base particle.

8 (original). The material of claim 7, wherein at least one SiO₂ layer deposited by an atomic layer deposition process is present upon the surface of the TiO₂ layer.

9 (original). The material of claim 7, wherein at least one ZrO₂ layer deposited by an atomic layer deposition process is present upon the surface of a TiO₂ layer.

10 (original). The material of claim 9 wherein at least one SiO₂ layer deposited by an atomic layer deposition process is present upon the surface of the ZrO₂ layer.

11 (currently amended). A curable dental composite material comprising a photocurable polymeric resin and a particulate filler material, wherein the particular filler material is a material of ~~claim 1~~ having a refractive index in the range of about 1.48 to about 1.60 and an average diameter of up to about 350 nanometers, the particles comprising a base particle having an average diameter of up to about 300 nanometers and one or more coating layers on the surface of said base particle, wherein said base particle or at least one coating layer is silica (SiO₂), and said base particle or at least one coating layer is a metal oxide having a refractive index greater than 1.60, wherein the particles have a predetermined refractive index greater than that of silica alone.

12 (original). The curable dental composite material of claim 11, wherein the base particle is silica, and the particles contain at least one ZrO₂ or TiO₂ layer deposited by an atomic layer deposition process.

13 (original). The curable dental composite material of claim 12 having a refractive index of from 1.50 to 1.58.

14 (original). The curable dental composite material of claim 13 wherein the refractive index of the particles is within 0.01 unit of the refractive index of the resin.

15 (original). The curable dental composite material of claim 14, wherein the particles have at least one SiO₂ layer deposited by an atomic layer deposition process upon the surface of a ZrO₂ or TiO₂ layer.

16 (original). The curable dental composite material of claim 14, wherein the particles have at least one TiO₂ layer deposited by an atomic layer deposition process upon the silica base particle.

17 (original). The curable dental composite material of claim 16, wherein the particles have at least one ZrO₂ layer deposited by an atomic layer deposition process upon the surface of a TiO₂ layer.

18 (original). The curable dental composite material of claim 14 wherein the resin is a diglycidylmethacrylate of bisphenol A (BIS-GMA), dodecanediol dimethacrylate, ethyoxylated bisphenol A dimethacrylate, triethyleneglycol dimethacrylate (TEGDMA), urethane dimethacrylate (UDMA), fluorinated monomeric or oligomeric urethane acrylate or a spiroorthocarbonate monomers or oligomers.

19 (currently amended). A process for making a filler material having a predetermined refractive index, comprising applying, by an atomic layer deposition process, one or more TiO₂ or ZrO₂ coating layers to a silica base particle ~~having an average diameter of up to about 300 nanometers~~ to form a coated particle having an average diameter of up to about 350 nanometers, ~~wherein said base particle or at least one coating layer is silica (SiO₂), and said base particle or at least one coating layer is a metal oxide having a refractive index greater than 1.60,~~ wherein the particles have a predetermined refractive index greater than that of silica alone and a diameter of from 30 to 80 nm.

20-21 (canceled).

22 (currently amended). The process of ~~claim 21~~ claim 19, wherein the coated particles have a refractive index of 1.50-1.58.

23 (original). The process of claim 22, wherein a TiO₂ layer is deposited on the silica base particle and at least one ZrO₂ layer is deposited on the TiO₂ layer.

24 (original). The process of claim 22, wherein a silica layer is deposited by atomic layer deposition on top of the TiO₂ or ZrO₂ layer.

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